

## CLAIMS

1. A laser weld joint comprising:

a first component portion defining a first laser weld surface and including a first taper surface opposite from said first laser weld surface; and

a second component portion defining a second laser weld surface and including a second taper surface opposite from said second laser weld surface wherein said first and second taper surfaces cooperate with each other to force said first and second laser weld surfaces into abutting engagement at a predetermined pressure forming a laser beam joint area and wherein a laser beam is directed to said laser beam joint area to permanently attach said first and second component portions together.

2. A laser weld joint as set forth in claim 1 wherein said first component portion comprises an upper shell for an air induction component and said second component portion comprises a lower shell for the air induction component, said upper and lower shells together forming the air induction component that is mountable to a vehicle engine.

3. A laser weld joint as set forth in claim 1 wherein said predetermined pressure is at least 190 pounds per square inch (psi).

4. A laser weld joint as set forth in claim 1 wherein one of said first and second component portions is comprised of a laser-transparent material and the other of said first and second components is comprised of an absorbing material.

5. A laser weld joint as set forth in claim 1 wherein at least one of said first or second taper surfaces defines a taper angle of at least thirty degrees.

6. A laser weld joint as set forth in claim 1 wherein said first laser weld surface comprises a first tapered weld surface and said second laser weld surface comprises a second tapered weld surface and wherein said first and second taper surfaces lock said first and second tapered weld surfaces together and maintain said predetermined pressure during laser welding.

7. A laser weld joint as set forth in claim 6 wherein said first and second tapered weld surfaces define weld taper angles that are different from each other and wherein the first and second taper surfaces define a taper angle that is at least twice that of said weld taper angles for both said first and second tapered weld surfaces.

8. A laser weld joint as set forth in claim 7 wherein said taper angle is at least thirty-six degrees with said weld taper angle for said first tapered weld surface being at least fourteen degrees and said weld taper angle for said second tapered weld surface being at least twelve degrees.

9. An air induction component assembly comprising:

a first shell made from a laser-transparent material defining a first laser weld surface and including a first taper locking surface opposite from said first laser weld surface;

a second shell made from an absorbing material defining a second laser weld surface and including a second taper locking surface opposite from said second laser weld surface; and

a laser weld joint area formed at said first and second laser weld surfaces to permanently attach said first shell to said second shell wherein said first and second taper locking surfaces cooperate with each other to lock said first and second laser weld surfaces into abutting engagement at a predetermined pressure during a laser welding process.

10. An air induction component assembly as set forth in claim 9 wherein predetermined pressure is at least 190 pounds per square inch (psi).

11. An air induction component assembly as set forth in claim 10 wherein said first laser weld surface comprises a first tapered weld surface defining a first angle and said second laser weld surface comprises a second tapered surface defining a second angle different than said first angle.

12. An air induction component assembly as set forth in claim 11 wherein a laser beam is applied generally perpendicular to at least one of said first and second tapered weld surfaces.

13. An air induction component assembly as set forth in claim 11 wherein at least one of said first or second taper locking surfaces defines a taper angle that is at least twice that of both said first and second angles.

14. A method for joining a first induction component portion to a second induction component portion in an air induction system comprising the steps of:

(a) forming a first air induction component portion from a laser-transparent material, defining a first laser weld surface, and forming a first taper surface on the first air induction component portion opposite from the first laser weld surface;

(b) forming a second air induction component portion from an absorbing material, defining a second laser weld surface, and forming a second taper surface on the second air induction component opposite from the second laser weld surface;

(c) moving the first and second taper surfaces into engagement to force the first and second laser weld surfaces into abutting engagement at a predetermined pressure; and

(d) directing a laser beam toward the first and second laser weld surfaces to form a laser weld joint that permanently joins the first air induction component portion to the second air induction component portion.

15. A method as set forth in claim 14 including the steps of moving the first and second taper surfaces into engagement by applying a first force in a first direction, moving the first and second laser weld surfaces into abutting engagement with the first and second taper surfaces exerting a second force in a second direction transverse to the first direction, and maintaining the predetermined pressure during the laser welding process.

16. A method as set forth in claim 14 including the steps of forming the first laser weld surface with a first tapered weld surface defining a first angle and forming the

second laser weld surface with a second tapered weld surface defining a second angle that is different than the first angle.

17. A method as set forth in claim 16 including the step of forming the first and second taper surfaces with a taper angle that is at least twice that of both the first and second angles.

18. A method as set forth in claim 17 including the steps of defining the taper angle as at least thirty-six degrees, defining the first angle as at least fourteen degrees, and defining the second angle as at least twelve degrees.

19. A method as set forth in claim 16 including the step of positioning the laser beam generally perpendicular to at least one of the first and second angles.

20. A method as set forth in claim 14 including the step of locking the first and second laser weld surfaces in abutting engagement with the first and second taper surfaces.